

CLAIMS

1. In a method for cutting sheet metal blanks from a coil of thin sheet metal strip:

- (a) uncoiling and straightening the metal strip in the longitudinal direction in a stepwise manner;
- (b) gripping the metal strip above a processing platform (10) in a lateral clamping frame (14) having clamping elements;
- (c) initially cutting the clamped metal strip in a cutting position (6) to leave only residual webs that hold the blanks in the residual strip (4);
- (d) moving the metal strip (4) while still clamped into a depositing position (7) above a depositing platform (12);
- (e) cutting the webs to free the blanks and stacking the blanks in sorted fashion on the platform (12);
- (f) releasing the clamping elements and returning the clamping frame (14) to its initial position; and
- (g) thereafter conveying the residual metal strip (4) from the depositing position (7) for disposal.

2. The method for cutting sheet metal blanks in accordance with Claim 1 wherein initially the leading end of the thin metal strip (4) initially is unrolled from the coil (2) and advanced between the clamping elements of the clamping frame (14) in the longitudinal direction; wherein the strip, gripped by the clamping frame (14) is tensioned in the transverse direction relative to the feed direction; wherein the supporting processing platform (10) is moved upwardly against the metal strip; and wherein, after the clamping elements are released following the second cutting operation and to initiate the subsequent operations, the released clamping elements of the returning clamping frame (14) slide into the cutting position (6) past the strip (4) and into their home position.

3. The method for cutting out sheet metal blanks in accordance with Claim 2 wherein the metal strip is advanced from the depositing position (7) between pull-out rollers which tension the metal strip (4) in the longitudinal direction.

4. The method for cutting sheet metal blanks in accordance with Claim 1 wherein the cutting steps are effected by a laser cutting head(s) and wherein the initially cut metal strip (4) and the cutting head(s) (15) are moved from the cutting position to the depositing position (7) at which the cutting head(s) (15) that performed the initial cutting sever the remaining webs.

5. The method for cutting sheet metal blanks in accordance with Claim 4 wherein the cutting head(s) (15) is/are guided along a curved path to sever the webs that hold the blanks in the metal strip (4) in noncritical locations in terms of the dimensional stability of the blanks.

6. The method for cutting sheet metal blanks in accordance with Claim 5 wherein that the clamping frame (14) holding the metal strip (4) as well as the empty clamping frame (14) are moved into the depositing position (7) and back to the cutting position (6) by means of cams that are connected to a guide system for the cutting head(s).

7. The method for cutting sheet metal blanks in accordance with Claim 1 wherein a positional measuring system detects deviations of the strip from a setpoint position and corrects a positional control for the cutting head (15) to provide proper alignment of the cutting head (15) with the strip (4) after its movement from the cutting position to the depositing position.

8. In a method for cutting sheet metal blanks from plates, the steps comprising:

- (a) gripping a metal plate above a processing platform (10) in a lateral clamping frame (14);
- (b) initially cutting the clamped metal plate in a cutting position (6) to leave only residual webs that hold blanks in the residual plate (4);
- (c) moving the metal plate (4) while still clamped into a depositing position (7) above a depositing platform (12);
- (d) cutting the webs to produce free blanks and stacking the blanks in sorted fashion in the platform (12);
- (e) releasing the clamping elements and returning the frame (14) to its initial position; and
- (f) thereafter conveying the residual metal plate (4) from the depositing position (7) for disposal.

9. The method for cutting sheet metal blanks in accordance with Claim 8 wherein the cutting steps are effected by a laser cutting head(s) and wherein the initially cut metal strip (4) and the cutting head(s) (15) are moved into the depositing position (7) at which the cutting head(s) (15) that performed the initial cutting sever the remaining webs.

10. A cutting apparatus for cutting sheet metal blanks from a coil of thin sheet metal strip comprising:

- (a) a reel (1) for holding a coil (2) of sheet metal;
- (b) a strip straightening and alignment unit (3);
- (c) a cutting machine (5) with a cutting head (15), a processing platform (6) and a depositing platform (7);
- (d) pull-out rollers (8) on the downstream side of said cutting machine;
- (e) a strip disposal unit (9) that collects the residual metal strip (4), said cutting machine having a worktable (11) in the cutting position (6) equipped with a suction device and supporting a processing platform (10) for supporting the uncoiled metal strip (4);
- (f) an elevating table (13) located in the depositing position (7) supporting a depositing platform (12), said elevating table being lowered to adapt to the deposited blanks; and
- (g) a clamping frame (14) that grips the metal strip (4), tensions it and holds it in the transverse direction relative to its travel direction, said clamping frame being movable between the cutting position (6) and the depositing position (7).

11. The cutting apparatus in accordance with Claim 10 wherein clamping elements on the clamping frame (14) can be moved relative to each other by means of compressed air-operated inflatable tubes, and wherein, the transverse direction relative to its travel direction, the clamping frame (14) can be clamped by compressed air cylinders within a finite range.

12. The cutting apparatus in accordance with Claim 10 wherein the depositing platform (7) includes receptacles for receiving the blanks.

13. The cutting apparatus in accordance with Claim 10 wherein the depositing platform (7) includes a conveyor system for transporting the blanks emanating from the cutting machine.

14. The cutting apparatus in accordance with Claim 10 wherein said cutting head (15) is reciprocable between the cutting position (6) and the depositing position (7), said apparatus including a cam driven by the cutting head (15) during its movement and engaging the clamping frame (14) to effect its movement.

15. The cutting apparatus in accordance with Claim 10 wherein the clamping frame (14) is connected to a positional measuring system that detects deviations in the position of the strip (4) from a setpoint position and corrects the positional control of the cutting head(s) (15) to properly align the cutting head (15) with the strip (4) after its movement from the cutting position (6) to the depositing position (7).